

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-095-02372 County Tyler District Meade  
Quad Pennsboro 7.5' Pad Name Terry Snider Pad Field/Pool Name -----  
Farm name Terry L. Snider Well Number Markle Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location: NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4357641m Easting 503094m  
Landing Point of Curve Northing 4357339.35m Easting 502754.13m  
Bottom Hole Northing 4354917m Easting 503716m

Elevation (ft) 1146.5' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Air - Foam & 4% KCL  
Mud - Polymer

Date permit issued 5/6/2016 Date drilling commenced 8/5/2016 Date drilling ceased 9/19/2016  
Date completion activities began 10/1/2017 Date completion activities ceased 4/9/2018  
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft N/A Open mine(s) (Y/N) depths No  
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths No  
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

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Reviewed

Reviewed by:

JEB  
9/12/2018

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/24/2018
Job End Date:	3/21/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02372-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Markle 1H
Latitude:	39.36814722
Longitude:	-80.96425278
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,439
Total Base Water Volume (gal):	18,136,549
Total Base Non Water Volume:	0



### Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.17425	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.30892	

SCALECHEK LP-70	Halliburton	Scale Inhibitor					
				Listed Below			
SAND-PREMIUM WHITE-40/70	Halliburton	Proppant					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
SAND-PREMIUM WHITE-30/50	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
LD_2900	Multi-Chem	Friction reducer					

				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2	Halliburton	Proppant					
				Listed Below			

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Crystalline silica, quartz	14808-60-7	100.00000	10.47759	
			Hydrochloric acid	7647-01-0	15.00000	0.15631	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01630	
			Inorganic salt	Proprietary	30.00000	0.01189	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.01189	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Guar gum	9000-30-0	100.00000	0.00933	
			Ethylene glycol	107-21-1	60.00000	0.00852	
			Acrylamide, sodium acrylate polymer	25987-30-8	30.00000	0.00441	
			Glutaraldehyde	111-30-8	30.00000	0.00263	
			Telmer	Proprietary	10.00000	0.00142	
			Sodium persulfate	7775-27-1	100.00000	0.00082	
			Sobitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00074	
			Poly(oxy-1,2-ethanediyl), .alpha.-tridecyl-.omega.-hydroxy-, branched	69011-36-5	5.00000	0.00074	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00044	

			Sodium polyacrylate	9003-04-7	1.00000	0.00014	
			Methanol	67-56-1	60.00000	0.00013	
			Ethanol	64-17-5	1.00000	0.00009	
			Ethoxylated alcohols	Proprietary	30.00000	0.00006	
			Modified thiourea polymer	Proprietary	30.00000	0.00006	
			Fatty acids, tall oil	Proprietary	30.00000	0.00006	
			Olefins	Proprietary	5.00000	0.00002	
			Propargyl alcohol	107-19-7	10.00000	0.00002	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Acrylic acid	79-10-7	0.01000	0.00000	
			Sodium sulfate	7757-82-6	0.10000	0.00000	

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

API 47-095 - 02372 Farm name Terry L. Snider Well number Markle Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	65'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	545'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2557'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15587'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6550'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	102 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	663 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	990 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	802 sx (Lead) 1261 sx (Tail)	13.45 (Lead), 15.15 (Tail)	1.44 (Lead), 1.87 (Tail)	3774	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15586' MD, 6437' TVD (BHL), 6437' (Deepest Point Drilled) Loggers TD (ft) 15586' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5691'

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

Conductor - 0  
 Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface  
 Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface  
 Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED N/A

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PRODUCING FORMATION(S)	DEPTHS		
<u>Marcellus</u>	<u>6390' (TOP)</u>	<u>TVD</u>	<u>6704' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 10029 mcfpd Oil 141 bpd NGL --- bpd Water 341 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	

**\*PLEASE SEE ATTACHED EXHIBIT 3**


Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company LLC  
 Address 207 Carlton Drive City Eighty Four State PA Zip 15330


Logging Company Kodiak Services Int'l  
 Address 2219 Sawdust Road, Unit 1604-1605 City The Woodlands State TX Zip 77380

Cementing Company BJ Services  
 Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company Baker Hughes  
 Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

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Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature  Title Permitting Agent Date 8/20/2018



API 47-095-02372 Farm Name Terry L. Snider Well Number Markle Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/24/2018	15316	15485	60	Marcellus
2	2/25/2018	15117	15285	60	Marcellus
3	2/25/2018	14917	15085	60	Marcellus
4	2/26/2018	14717	14885	60	Marcellus
5	2/26/2018	14517	14686	60	Marcellus
6	2/26/2018	14317	14486	60	Marcellus
7	2/27/2018	14117	14286	60	Marcellus
8	2/28/2018	13918	14086	60	Marcellus
9	3/1/2018	13718	13886	60	Marcellus
10	3/1/2018	13518	13686	60	Marcellus
11	3/2/2018	13318	13487	60	Marcellus
12	3/2/2018	13118	13287	60	Marcellus
13	3/3/2018	12918	13087	60	Marcellus
14	3/4/2018	12719	12887	60	Marcellus
15	3/4/2018	12519	12687	60	Marcellus
16	3/5/2018	12319	12487	60	Marcellus
17	3/5/2018	12119	12288	60	Marcellus
18	3/5/2018	11919	12088	60	Marcellus
19	3/6/2018	11719	11888	60	Marcellus
20	3/6/2018	11520	11688	60	Marcellus
21	3/6/2018	11320	11488	60	Marcellus
22	3/7/2018	11120	11288	60	Marcellus
23	3/9/2018	10920	11089	60	Marcellus
24	3/9/2018	10720	10889	60	Marcellus
25	3/10/2018	10520	10689	60	Marcellus
26	3/11/2018	10321	10489	60	Marcellus
27	3/11/2018	10121	10289	60	Marcellus
28	3/12/2018	9921	10089	60	Marcellus
29	3/13/2018	9721	9890	60	Marcellus
30	3/13/2018	9521	9690	60	Marcellus
31	3/14/2018	9321	9490	60	Marcellus
32	3/14/2018	9122	9290	60	Marcellus
33	3/15/2018	8922	9090	60	Marcellus
34	3/16/2018	8722	8890	60	Marcellus
35	3/16/2018	8522	8691	60	Marcellus
36	3/17/2018	8322	8491	60	Marcellus
37	3/17/2018	8122	8291	60	Marcellus
38	3/18/2018	7923	8091	60	Marcellus
39	3/18/2018	7723	7891	60	Marcellus
40	3/19/2018	7523	7691	60	Marcellus
41	3/20/2018	7323	7492	60	Marcellus
42	3/20/2018	7123	7292	60	Marcellus
43	3/20/2018	6923	7092	60	Marcellus
44	3/21/2018	6724	6892	60	Marcellus

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**EXHIBIT 2**

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	2/24/2018	73.3	7892	5327	4983	18202	12265	N/A
2	2/25/2018	76.5	7491	5354	4603	17448	9281	N/A
3	2/25/2018	70.4	7502	5691	4265	17458	12520	N/A
4	2/26/2018	72.7	7456	5602	4087	17145	9062	N/A
5	2/26/2018	75.7	7212	5505	3736	16453	9303	N/A
6	2/26/2018	75.8	7291	5989	3941	17221	9433	N/A
7	2/27/2018	74.5	7474	5812	4829	18115	9135	N/A
8	2/28/2018	75.1	7476	5398	4620	17494	9417	N/A
9	3/1/2018	71.6	7417	5735	4416	17568	9111	N/A
10	3/1/2018	74.3	7489	5620	3773	16882	9512	N/A
11	3/2/2018	68.9	7488	5360	3852	16700	10232	N/A
12	3/2/2018	68.4	7093	5377	3571	16041	9037	N/A
13	3/3/2018	74.4	6941	5141	3768	15850	9145	N/A
14	3/4/2018	72.9	6905	5217	3812	15934	9007	N/A
15	3/4/2018	74.9	7164	5485	3728	16377	9384	N/A
16	3/5/2018	73.4	6895	5363	3615	15873	9300	N/A
17	3/5/2018	70.8	7543	5385	4738	17666	12722	N/A
18	3/5/2018	74.4	6824	5182	3798	15804	9185	N/A
19	3/6/2018	75	7053	5089	3676	15818	9555	N/A
20	3/6/2018	73.7	7030	5596	3614	16240	9250	N/A
21	3/6/2018	69	7148	5289	3161	15598	10849	N/A
22	3/7/2018	74.9	6920	5202	3441	15563	9380	N/A
23	3/9/2018	75.7	6859	5410	4086	16355	9163	N/A
24	3/9/2018	77.5	6928	5204	3709	15841	8947	N/A
25	3/10/2018	76.5	6816	5490	3876	16182	9490	N/A
26	3/11/2018	74.5	6876	5428	3811	16115	10489	N/A
27	3/11/2018	74.9	6778	5404	3493	15675	9393	N/A
28	3/12/2018	73.9	6594	5143	3630	15367	9343	N/A
29	3/13/2018	73	6879	5314	3534	15727	9375	N/A
30	3/13/2018	74	6586	5510	3635	15731	9197	N/A
31	3/14/2018	74.8	6260	4904	2957	14121	9147	N/A
32	3/14/2018	71.8	6817	4992	3636	15445	9182	N/A
33	3/15/2018	75.8	6528	5055	3643	15226	9939	N/A
34	3/16/2018	75.2	6419	5512	3625	15556	8923	N/A
35	3/16/2018	77.1	6430	6028	4076	16534	8886	N/A
36	3/17/2018	73.8	6586	6164	4418	17168	8868	N/A
37	3/17/2018	78.8	6644	5846	4519	17009	9279	N/A
38	3/18/2018	75.3	6535	4987	3682	15204	9056	N/A
39	3/18/2018	76.4	6657	5156	3512	15325	9075	N/A
40	3/19/2018	74.7	6252	5062	3935	15249	8932	N/A
41	3/20/2018	72.8	6303	5148	3847	15298	10367	N/A
42	3/20/2018	76.6	6821	5139	3533	15493	8970	N/A
43	3/20/2018	73	6822	5312	5281	17415	9816	N/A
44	3/21/2018	74.8	6483	5705	4972	17160	9084	N/A
	AVG=	74.1	6,945	5,401	3,942	16,646	421,006	TOTAL

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## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	0	N/A	0	N/A
Silty Sandstone	260	N/A	260	N/A
Shale w/trace Coal	560	N/A	560	N/A
Silty Sandstone	740	N/A	740	N/A
Limey Shale	880	N/A	880	N/A
Silty Shale w/trace Coal	1,080	N/A	1,080	N/A
Silty Sandstone	1,240	N/A	1,240	N/A
Silty Shale w/trace Coal	1,380	N/A	1,380	N/A
Silty Sandstone	1,520	N/A	1,520	N/A
Sandstone w/trace Coal	1,600	N/A	1,600	N/A
Silty sandstone	1,680	N/A	1,680	N/A
Shale w/trace Coal	1,740	N/A	1,740	N/A
Silty Sandstone	1,840	N/A	1,840	N/A
Big Lime	2,034	N/A	2,056	N/A
Big Injun	2,148	N/A	2,175	N/A
Gantz Sand	2,560	N/A	2,600	N/A
Fifty Foot Sandstone	2,847	N/A	2,892	N/A
Gordon	2,936	N/A	2,982	N/A
Fifth Sandstone	3,182	N/A	3,234	N/A
Bayard	3,259	N/A	3,314	N/A
Warren	3,652	N/A	3,721	N/A
Speechley	3,998	N/A	4,078	N/A
Balltown	4,270	N/A	4,359	N/A
Bradford	4,683	N/A	4,784	N/A
Benson	5,053	N/A	5,165	N/A
Alexander	5,300	N/A	5,420	N/A
Rhinestreet	5,846	N/A	5,984	N/A
Sycamore	6,178	N/A	6,352	N/A
Middlesex	6,270	N/A	6,473	N/A
Burkett	6,363	N/A	6,635	N/A
Tully	6,384	N/A	6,687	N/A
Marcellus	6,390	N/A	6,704	N/A

\*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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LATITUDE 39°22'30" 1,674'

11,419' TO BOTTOM HOLE

LATITUDE 39°22'30"

LONGITUDE 80°55'00"

2,496'

LONGITUDE 80°57'30"

11,438' TO BOTTOM HOLE

Antero Resources Corporation  
Well No. Markle Unit 1H

**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 319,570ft E: 1,586,042ft  
 LAT: 39°22'05.33" LON: 80°57'51.32"  
**BOTTOM HOLE INFORMATION:**  
 N: 310,596ft E: 1,587,936ft  
 LAT: 39°20'36.94" LON: 80°57'25.35"

**WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.**

**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 4,357,641m E: 503,094m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,354,917m E: 503,716m

WV NORTH ZONE GRID NORTH

PAD LAYOUT NOT TO SCALE

- 10' EDWARDS UNIT 1H
- 10' MARKLE UNIT 1H
- 10' EDWARDS UNIT 3H
- 10' MARKLE UNIT 2H
- 10' EDWARDS UNIT 2H
- 10' MARKLE UNIT 3H
- 10' TINKER UNIT 3H
- 10' DILLON UNIT 2H
- 10' TINKER UNIT 2H
- 10' DILLON UNIT 3H
- 10' TINKER UNIT 1H
- 10' DILLON UNIT 1H



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 16-008WA  
 DRAWING # MARKLE1HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

**LEGEND**  
 --- Surface Owner Boundary Lines +/-  
 --- Interior Surface Tracts +/-  
 ○ Proposed Well Path  
 ⊙ As Drilled Well Path

*Thomas Summers*  
 THOMAS SUMMERS P.S. 2109

DATE 08/01/18  
 OPERATOR'S WELL# MARKLE UNIT #1H

- NOTE**
- NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
  - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  - WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

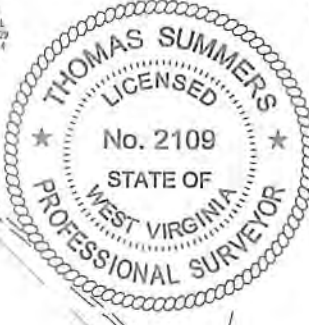
WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ 47 \_\_\_ 095 \_\_\_ 02372  
 (IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X STATE COUNTY PERMIT  
 LOCATION: ELEVATION 1,146.5' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK  
 QUADRANGLE PENNSBORO 7.5' DISTRICT MEADE COUNTY TYLER

SURFACE OWNER RITCHIE PETROLEUM INC. ACREAGE 30.92 ACRES +/-  
 OIL & GAS ROYALTY OWNER ASHFORD BROADWATER; TERRY L. SNIDER; VICTOR AYERS ET UX; H3, LLC; MATTHEW B. HARPER ET UX; SYLVIA L. RICHARDS; FLOYD C. MARKLE ET AL; LENORA PANCAKE; THE WINSTON FAMILY TRUST LEASE ACREAGE 583.712 ACRES +/- 87 ACRES +/- 97 ACRES +/- 33 AC +/- 108 ACRES +/- 81.5 ACRES +/- 81 ACRES +/- 32.5 ACRES +/- 21 ACRES +/-

PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_  
 PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,437' TVD 15,586' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME

PERMIT

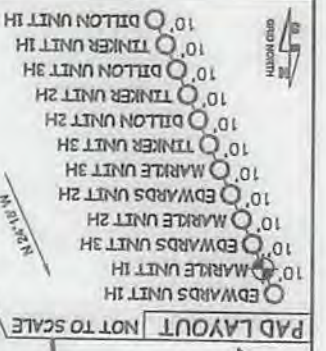
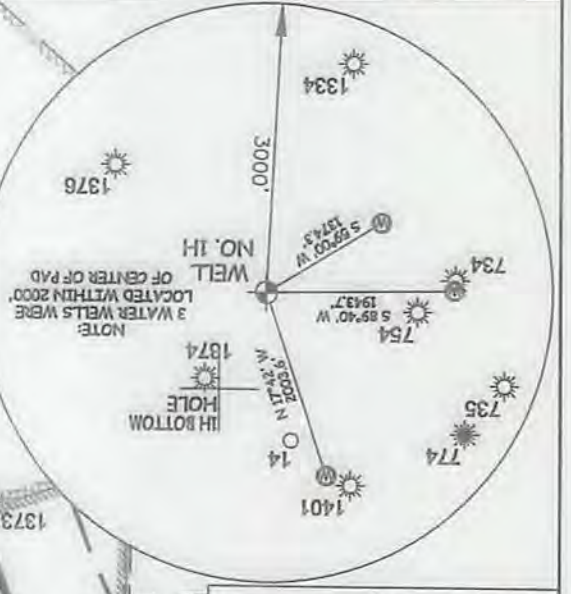
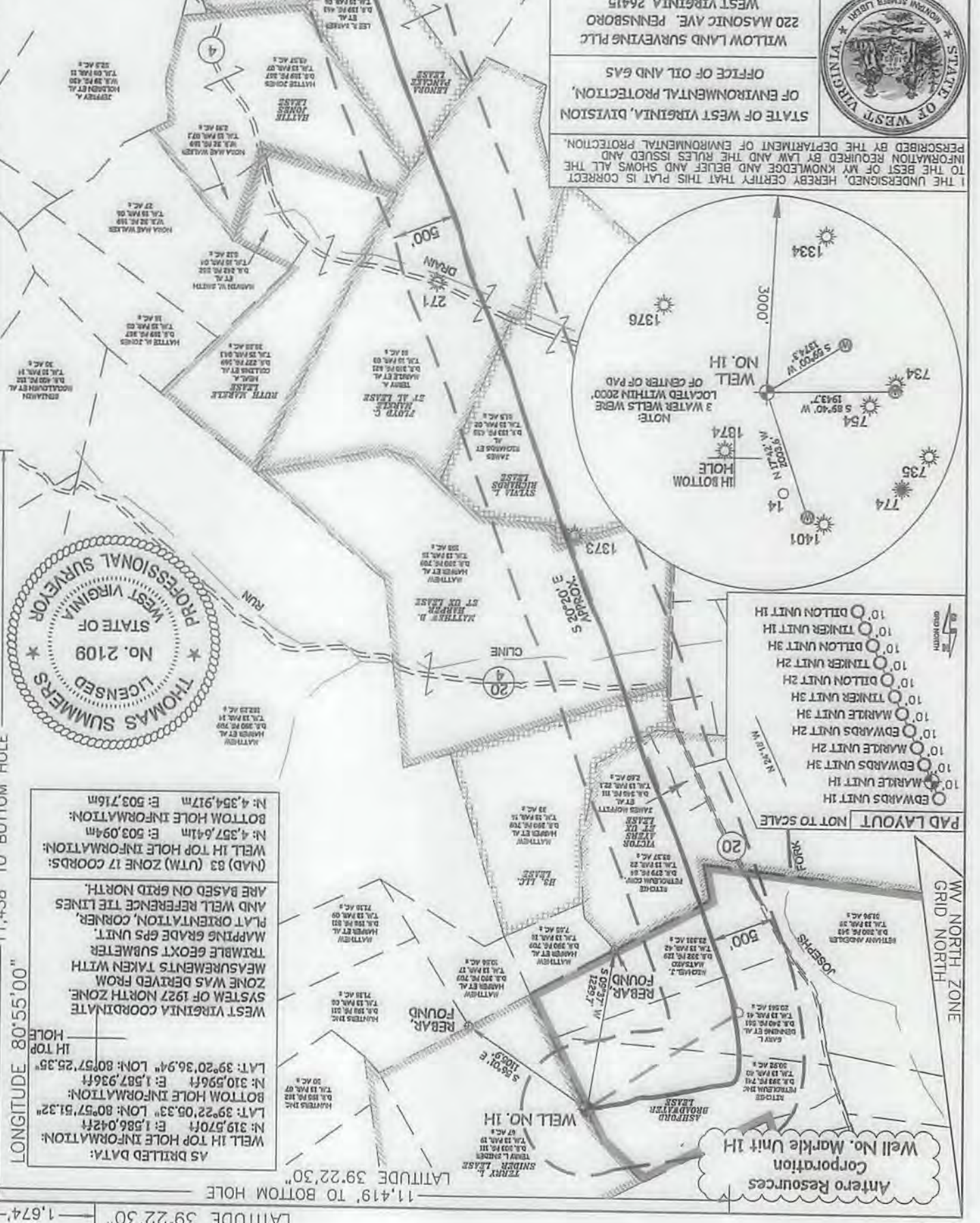


WELL TYPE: OIL  
 GAS X LIQUID INJECTION  
 WASTE DISPOSAL  
 COUNTY TYLER  
 STATE 47  
 COUNTY PERMIT 095  
 COUNTY PERMIT 02372

JOB # 16-008WA  
 DRAWING # MARGEHAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY  
 SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
 STATE OF WEST VIRGINIA  
 DEPARTMENT OF ENERGY  
 DIVISION OF OIL AND GAS  
 OPERATOR'S WELL # MARGEUNIT#1H

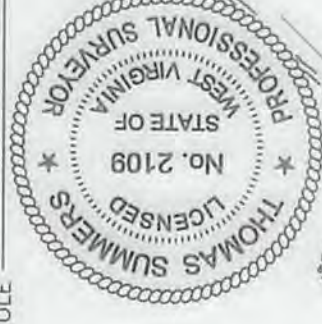


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION,  
 OFFICE OF OIL AND GAS  
 WILLOW LAND SURVEYING PLLC  
 220 WASHINGTON AVE. PENNSBORO  
 WEST VIRGINIA 26415



AS DRILLED DATA:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 319.570ft E: 1.586.042ft  
 LAT: 39°22'05.33" LON: 80°57'51.32"  
 BOTTOM HOLE INFORMATION:  
 N: 310.596ft E: 1.587.936ft  
 LAT: 39°20'36.94" LON: 80°57'25.35"  
 WELL 1H TOP HOLE INFORMATION:  
 N: 4.957.641m E: 503.094m  
 (NAD 83 (UTM) ZONE 17 COORDS:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 4.957.641m E: 503.094m  
 BOTTOM HOLE INFORMATION:  
 N: 4.354.917m E: 503.716m

WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER. MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.



LATITUDE 39°22'30"  
 LONGITUDE 80°55'00"  
 LONGITUDE 80°57'30"  
 11.438' TO BOTTOM HOLE  
 2.496'

1. NO COATED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POLYTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.  
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ATTERO SURVEYING, INC.  
 3. AS DRILLED DATA WAS PROVIDED BY ATTERO SURVEYING, INC.  
 4. THIS IS NOT CERTIFIED DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE LEASE BOUNDARIES.  
 5. THIS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.